TWO FAINT STARS WITH LARGE PROPER MOTION.

1. In a search for companions of stars with large proper motion two plates of the region of Lalande 1299 were taken on September 15, 1914, and two on September 12, 1917. The plates do not show any companion of Lalande 1299 ($\mu = 1''.37$ in $p = 146°.9$), but reveal a star which has an even larger motion. This star is located 9′ north and 11′ east of Lalande 1299; its annual proper motion with respect to some stars in the neighborhood, as derived from the two pairs of plates, is:

$$\mu = 3''.01 \text{ in } p = 156°.$$

The star is also given in the "Carte du Ciel" Catalog of Toulouse; the plate was taken on November 11, 1896. Its position as given there has been plotted on the same scale as the Mount Wilson plates and the proper motion derived from a comparison with one of the 1917 plates. The result is:

$$\mu = 3''.01 \text{ in } p = 155°.$$

According to the Toulouse catalog the magnitude is 12.3 and the position for 1900.0 is

$$\alpha = 0^h\ 43^m\ 52^s$$
$$\delta = +4°\ 55'$$

From three polar-comparison plates Mr. Seares has derived a photographic magnitude of 12.91. A spectrum of the star of 4½ hours exposure was taken on October 24, 1917, with a small spectroscope at the 80-foot focus of the 60-inch reflector. The scale of the spectrum is 2 mm. from K to Hβ; according to Mr. Adams the spectrum is about Fo.

2. Two plates of the region around Lalande 5490 ($\mu = 1''.01$ in $p = 131°.4$) were taken on October 13, 1914, and two on November 7, 1917. They show a faint star 2′ north and 4′ east of Lalande 5490, which has practically the same annual motion, viz.,

$$\mu = 1''.13 \text{ in } p = 134°.5.$$

The magnitude, 12.6, was derived from countings on one of the plates, using the tables in *Publications of the Astronomical Laboratory at Groningen*, No. 18. The position for 1900.0 is:

$$\alpha = 2^h\ 56^m\ 31^s$$
$$\delta = +61°\ 22'$$

The parallax of the principal star has been determined by Chase and Jewdokimov; I was also allowed to use the value derived by Mr. Adams by the spectroscopic method; the weighted mean parallax is $+0''.045$. If both stars are at the same distance, as is

likely on account of their practically identical proper motion, the absolute magnitude of the faint star is +10.9 and the distance from the principal star 5860 times the distance Sun-Earth.

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TEN SPECTROSCOPIC BINARIES.

The binary character of the following stars has been established by measurements of their radial velocities on recent spectrograms:

Star	*Mag.*	α(1900)	δ(1900)	*Spec.*	*Range km.*
		h m			
Boss 2193	5.8	8 10.6	+ 62° 49′	G5	− 19 to + 23
A.G.Cam. 3591	6.5	10 7.3	+ 50° 59′	A4	− 82 to + 37
Boss 4573	5.8	18 0.7	− 8° 20′	B8	− 50 to + 12
Boss 4669	5.6	18 22.1	+ 29° 46′	A4	− 10 to + 40
Boss 4821	5.8	18 54.6	+ 38° 8′	B7	− 90 to + 40
Boss 5150	5.7	20 0.7	+ 31° 56′	Composite	
Boss 5160	6.1	20 3.1	− 10° 21′	Composite	
A.G.Cam. 6486	7.4	20 15.9	+ 55° 5′	F3	− 31 to + 3
Boss 5890	5.8	22 45.9	+ 41° 25′	Composite	
Boss 6129	6.6	23 47.5	+ 74° 59′	Composite	

The period of Boss 4821 is probably of the order of three days. Plates taken on successive nights show a large variation.

The hydrogen lines in the spectrum of Boss 5150 give values differing systematically from those of the helium, silicon, and oxygen lines. The spectrum is B1p.

A faint component is visible on several of the photographs of Boss 5160. The maximum separation observed amounts to about 160 km. The spectrum is A1p.

Measures of a second component on one plate of Boss 5890 give a relative velocity of 190 km. The spectral type is B3p.

The star Boss 6129 is β 996. The star has a proper motion of 0″.332 annually. The spectrum is K3p and shows marked variations in the intensities of many of its lines. The spectroscopically determined parallax is +0″.132, but on account of the variations in the spectrum separate plates show considerable differences.

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TWO STARS WITH REMARKABLE RADIAL VELOCITIES.

Measurements of the spectra of two stars observed recently show the following velocities:

	Mag.	*Spec.*	μ	*Velocity km.*	*No. Plates*
A. G. Ber. B. 1366	8.9	Fo	0″.51	+ 339	4
A. G. Ber. A. 1866	9.0	F9	0 .76	− 190	4